

REMARKS

This Amendment responds to the non-final Office Action mailed March 29, 2006. Claims 1-6, 8-10, and 25-28 are pending. Claims 1 and 25 have been amended. In view of the foregoing amendments, as well as the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and request reconsideration of the application in this regard.

Rejection of Claims Under 35 U.S.C. § 112

Claims 1-6 and 8-10 stand rejected as failing to comply with the written description requirement and for failing to particularly point out and claim the subject matter that Applicants regard as the invention. Without prejudice to reintroducing the removed language, Applicants have amended claim 1 to remove the language identified by the Examiner. Accordingly, Applicants request that the rejections be withdrawn.

Rejections of Claims Under 35 U.S.C. § 102

Claims 25-28 stand rejected under 35 U.S.C. § 102(b) as anticipated by Jin et al. (U.S. Patent No. 6,250,984), hereinafter *Jin*. Of these claims, claim 25 is the only independent claim. The Examiner contends that *Jin* shows or teaches all the elements of the rejected claims. Applicants respectfully disagree for the reasons set forth below.

In contrast to Applicants' claim 25, as amended, *Jin* fails to disclose or suggest "an electrically-conductive layer disposed between said first and second plates," "said at least one nanotube positioned in said electrically-conductive layer," and that the dielectric layer coating electrically isolates the at least one nanotube from the electrically-conductive layer and the second plate. Instead, *Jin* discloses a first plate (104), nanotubes (103) electrically coupled at a first end with the first plate (104), a second plate (100A), and a dielectric layer (101A) disposed between the first and second plates (104, 100A). The dielectric layer (101A) identified by the Office Action fails to coat the nanotubes (103), as set forth in Applicants' claim 25. Moreover, the nanotubes (103) do not extend into an electrically-conducting layer between plates (100A, 104). The electrically-conducting layer is absent from the structure disclosed in *Jin*.

In order for a reference to anticipate the invention in a claim, the reference must teach each and every element in the precise arrangement set forth in the claim. If the reference fails to teach even one of the claimed elements, the reference does not and cannot anticipate the claimed invention. *Jin* fails to disclose or suggest the claimed dielectric coating on the nanotubes as set forth in Applicants' independent claim 25, as amended. For at least this reason, Applicants' independent claim 25 is patentable over *Jin*. Consequently, Applicants respectfully request that this rejection be withdrawn.

Furthermore, *Jin* provides no suggestion that would motivate a person having ordinary skill in the art to coat the nanotubes (103) with a dielectric layer (101A). *Jin* fails to disclose that the nanotubes (103) can be coated with dielectric coating and continue to operate as field emitters in a field emission display. Support for the amendment to claim 25 is found at page 11, lines 8-25.

Because claims 26-28 depend from independent claim 25, Applicants submit that these claims are also patentable for at least the same reasons discussed above. Furthermore, these claims recite unique combinations of elements not taught, disclosed or suggested by *Jin*.

Rejection of Claims Under 35 U.S.C. § 103

Claims 1-6, 8, and 10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Farnsworth et al. (U.S. Patent No. 6,858,891), hereinafter *Farnsworth*. Of these claims, claim 1 is the only independent claim. Applicants respectfully traverse the rejection.

In contrast to Applicants' independent claim 1, as amended, *Farnsworth* fails to disclose or suggest that the nanotube includes "a first end electrically coupled with said source region" and "a second end electrically coupled with said drain region." According to MPEP § 2111.01, words of the claim must be given their plain (i.e., ordinary and customary) meaning unless applicant has provided a clear definition in the specification. The plain meaning is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application. The plain meaning of the term "end" is "either extremity of something that has a length." *See, e.g.*, The American Heritage Dictionary, 3rd Ed., p. 453. The word "extremity" may be defined as "the outermost or farthest point or portion." *See, e.g.*, The

American Heritage Dictionary, 3rd Ed., p. 486. The nanotube (22) in *Farnsworth* has an inverted U-shape. Based on the plain meaning of the term “end” and the definition of the word “extremity,” a person having ordinary skill in the art would comprehend that both ends of the nanotube (22) in *Farnsworth* are electrically coupled with the source (17). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *See* MPEP § 2143.03. Because of the deficiencies of *Farnsworth*, Applicants respectfully request that this rejection be withdrawn.

Furthermore, *Farnsworth* provides no suggestion that would motivate a person having ordinary skill in the art to modify the device structure such that one end of nanotube (22) is electrically coupled with the drain and the other end of the nanotube (22) is electrically coupled with the source. *Farnsworth* requires that the region of the U-shaped nanotube (22) above the drain (21) be available for forming a capacitor as “each nanotube 22 forms both a channel of a vertical transistor and a cell for the capacitor.” *See* column 4, lines 1-2. Consequently, if one end of the nanotube (22) were electrically coupled with the drain (21) and the other end of the nanotube (22) were electrically coupled with the source (17), then the capacitor cell would necessarily be eliminated as the entire length of the nanotube (22) would operate as the channel. According to § 2143.01 of the MPEP, “if proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Eliminating the capacitor cell would make the device described in *Farnsworth* unsatisfactory for its intended purpose as no portion of the nanotube (22) would be available to store a charge. Consequently, the Office Action fails to establish *prima facie* obviousness. For at least this reason, Applicants respectfully request that this rejection be withdrawn.

The Examiner states on page 7 of the Office Action that “Farnsworth et al. clearly state in column 3, lines 55-56 and column 7, lines 41-42 that the nanotube acts as the channel region.” When read in context, Applicants note that *Farnsworth* also clearly discloses that the nanotube must also act as the capacitor cell. Hence, a person having ordinary skill in the art would understand that

electrically coupling one end of the nanotube (22) with the source (17) and the other end of the nanotube (22) with the drain (21) would eliminate the capacitor cell.

Because claims 2-6, 8, and 10 depend from independent claim 1, Applicants submit that these claims are also patentable for at least the same reasons discussed above. Furthermore, these claims recite unique combinations of elements not taught, disclosed or suggested by *Farnsworth*.

Conclusion

Applicants have made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing amendments and remarks, this application is submitted to be in complete condition for allowance and, accordingly, a timely notice of allowance to this effect is earnestly solicited. In the event that any issues remain outstanding, the Examiner is invited to contact the undersigned to expedite issuance of this application.

Applicants do not believe fees are due in connection with filing this communication. If, however, any fees are necessary as a result of this communication, the Commissioner is hereby authorized to charge any under-payment or fees associated with this communication or credit any over-payment to Deposit Account No. 23-3000.

Respectfully submitted,

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Date

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